Concept Paper Amendment

Paper Title: Population versus individual prediction of poor health from Adverse Childhood Experiences (ACEs) screening*

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*Note that the provisional paper title was "Testing the clinical utility of screening for adverse childhood experiences for the prediction of health outcomes"

Changes to study:

1. To test forecasting and incremental prediction, we used quasi-poisson models to (obtain relative risks) instead of logistic regression models (to obtain odds ratios). We opted to present relative risks over odds ratios for two reasons. First, we include common health outcomes (e.g., any mental health problem; any physical health problem) and the odds ratio is elevated in comparison to the relative risk for common outcomes (Cummings, 2009). Second, relative risks can be interpreted more intuitively by those without a statistical background, and we intend this paper to reach a broad audience of clinicians, policy makers, and researchers.
2. To test incremental prediction, we assessed whether ACEs predicted health outcomes independent of other clinically available covariates, instead of assessing the change in R^2 values between unadjusted and adjusted models. This was because it is not possible to obtain R^2 values from quasi-poisson models based on binary outcomes.
3. To test discrimination, we chose to report only the C-statistic summarising the area under the ROC curve, and not all of the diagnostic accuracy indicators (sensitivity, specificity, positive predictive value, negative predictive value) in the interests of brevity.
4. We included one additional mental health outcome (attention-deficit hyperactivity disorder [ADHD]) and two additional physical health outcomes (asthma and sexually transmitted diseases [STDs]). We chose to include ADHD to maximise the number of externalising outcomes (along with drug dependence) in addition to the internalising outcomes (depression, anxiety, self-harm and suicide attempt). We chose to include asthma and STDs to maximise the number of physical health outcomes assessed in both cohorts, and because these are commonly associated with ACEs (Exley et al., 2015, Hughes et al., 2017).

References:

Cummings, P. 2009. The relative merits of risk ratios and odds ratios. *Archives of Pediatrics & Adolescent Medicine,* 163**,** 438-445.

Exley, D., Norman, A. & Hyland, M. 2015. Adverse childhood experience and asthma onset: a systematic review. *European Respiratory Review,* 24**,** 299-305.

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L. & Dunne, M. P. 2017. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet Public Health,* 2**,** e356-e366.